

WHAT IS CLAIMED IS:

1. A variable voltage switchable fixing apparatus of a printer having a control unit to control an engine of the printer, comprising:

an input voltage detector detecting an input voltage of a power supply inputted thereto and outputting a signal corresponding to the detected input voltage;

a first resistance body having a first end thereof connected to a second terminal of the power supply;

a second resistance body having a first end thereof connected to a second end of the first resistance body;

a first switching unit connected between a second end of the second resistance body and a first terminal of the power supply to switch on or to switch off in response to a control signal from the control unit; and

a second switching unit connected between the second end of the first resistance body and the second terminal of the power supply to switch on or to switch off in response to the output signal from the input voltage detector.

2. The variable voltage switchable fixing apparatus according to claim 1, wherein the input voltage is either 110 volts or 220 volts.

3. The variable voltage switchable fixing apparatus according to claim 1, wherein the input current is an alternating current.

4. The variable voltage switchable fixing apparatus according to claim 3, wherein:
the input voltage detector comprises:

a first input voltage detector unit having a first luminous element connected between the first terminal and a junction of a first zener diode and a first diode, wherein the first zener diode and the first diode are connected in series between the first and second terminals of the power supply; and

a second input voltage detector unit having a second luminous element connected between the second terminal of the power supply and a junction of a second zener diode and a second diode, wherein the second zener diode and the second diode are connected in series between the first and second terminals of the power supply, and

the second switching unit comprises:

a plurality of phototransistors connected in parallel to turn on or to turn off in response to whether the first and second luminous elements radiate.

5. The variable voltage switchable fixing apparatus according to claim 4, wherein the plurality of phototransistors comprise:

first and second phototransistors, turning on or turning off in response to whether the first and second luminous elements, respectively, radiate.

6. The variable voltage switchable fixing apparatus according to claim 1, wherein the first resistance body and the second resistance body are lamps.

7. The variable voltage switchable fixing apparatus according to claim 1, wherein the first resistance body is a resistance element providing a voltage drop and the second resistance body is a lamp.

8. The variable voltage switchable fixing apparatus according to claim 3, further comprising:

a rectifier rectifying and smoothing the input voltage to generate a DC voltage, wherein the input voltage detector detects an output voltage from the rectifier and outputs a signal corresponding to the detected output voltage to the second switching unit.

9. The variable voltage switchable fixing apparatus according to claim 4, wherein the first and second zener diodes have trigger voltages thereof of 110V or a voltage lower than maximum allowable voltages of 110V lamps, which are provided as the first and/or second resistance bodies to provide heat.

10. The variable voltage switchable fixing apparatus according to claim 4, wherein the input voltage detector forms a current path through the first and second luminous elements to radiate on a trigger voltage and a current path through the first and second zener diodes on a voltage higher than a preset voltage when the first and second luminous elements are off.

11. The variable voltage switchable fixing apparatus according to claim 4, further comprising;

a third luminous element, wherein the first switching unit comprises:

a series of a capacitor and a resistance element;

a triac connected in parallel with the series; and

a phototriac triggering a gate terminal of the triac, the third luminous element being coupled with the phototriac and controlled by the control unit.

12. The variable voltage switchable fixing apparatus according to claim 11, further comprising:

an inductor connected to the first and second ends of the second resistance body through the phototriac, wherein:

the first switching unit turns on or turns off a current flowing through the inductor; and

the phototriac is turned on/off in response to whether the third luminous element is radiating under a control of the control unit.

13. The variable voltage switchable fixing apparatus according to claim 1, further comprising:

an inductor connected to the first and second ends of the second resistance body through the first switching unit; and

a third luminous element, wherein:

the first switching unit turns on or turns off a current flowing through the inductor in response to whether the third luminous element is radiating under a control of the control unit.

14. The variable voltage switchable fixing apparatus according to claim 1, further comprising:

a fixing roller, wherein the first and second resistance bodies are disposed inside the fixing roller to heat the fixing roller.

15. The variable voltage switchable fixing apparatus according to claim 1, wherein portions of the input voltage are serially supplied to the first and second resistance bodies, respectively, or the input voltage is supplied only to the second resistance body according to operations of the first and second switching units.

16. The variable voltage switchable fixing apparatus according to claim 14, wherein:
the second switching unit is turned on when the input voltage is lower than or equal to a preset voltage so that power is supplied to the second resistance body in response to whether the first switching unit is turned on or turned off; and

the second switching unit is turned off when the input voltage is higher than the preset voltage so that the power is serially supplied to the first and second resistance bodies in response to whether the first switching unit is turned on or turned off.

17. The variable voltage switchable fixing apparatus according to claim 3, wherein:
the input voltage detector comprises:

a first input voltage detector comprising:

a first series of a first zener diode, a first luminous element and a first diode; and

a second input voltage detector unit comprising:

a second series of a second zener diode, a second luminous element and a second diode,

the first and second input voltage detectors connected in parallel between first and second terminals of the power supply to correspond to a phase of an alternating current signal.

18. The variable voltage switchable fixing apparatus according to claim 17, further comprising:

third and fourth luminous elements;

third and fourth phototransistors coupled to third and fourth luminous elements, respectively; and

first and second phototransistors connected in parallel to output a high signal or a low signal to the control unit in response to being switched on or switched off, wherein the control unit controls the third and fourth luminous elements to control the third and fourth phototransistors, respectively, to turn on or to turn /off.

19. The variable voltage switchable fixing apparatus according to claim 18, wherein the control unit determines the input voltage from the high or low signals of the first and second phototransistors in response to switching on or to switching off of the first phototransistor and second phototransistors coupled with the first and second luminous elements, respectively, and controls the third and fourth luminous elements to turn on or to turn off in response to a determined result.

20. A 110V/220V switchable printer, comprising:
a photoconductor;
a fixing apparatus transferring an image developed on the photoconductor by a developer to a paper and fixing the transferred image on the paper by applying a heat of a certain temperature;
an input voltage detector detecting an input voltage of a AC power supply inputted thereto and outputting a signal corresponding to the detected input voltage;
a first resistance body having a first end thereof connected to a second AC terminal of the AC power supply;
a second resistance body having a first end thereof connected to a second end of the first resistance body;
a first switching unit connected between a second end of the second resistance body and a first AC terminal of the AC power supply to switch on or to switch off;
a second switching unit connected between the second end of the first resistance body and the second AC terminal of the AC power supply to switch on or to switch off; and
a control unit connected so as to input the signal outputted from the input voltage detector controlling the first and second switching units.